

Toxicity Of Carbon Tetrachloride

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less thousands of persons of all ages are living today who would be dead but for modern medicine. Medical progress is keeping alive, or rather "preventing from dying," many for whom life holds out no prospects of a worthwhile existence, and large numbers have reached an age and condition in which their only prospect is mental or physical suffering.

Voluntary euthanasia is not, as has been stated by some who ought to know better, "getting rid of unwanted old people." It is gently helping over the border those, and only those, who specifically ask for it. If this new advance were legalized it is certain that the great majority would rather "stick it out," but at the same time it would be an enormous relief to know that there was a way out if life became insupportable.—I am, etc.,

K. H. SOUTHALL.

Rednal,
Nr. Birmingham.

Abdominal Sepsis Presenting as Abscess of Right Thigh

SIR,—Mr. D. Keown's interesting case of acute appendicitis presenting as an abscess in the right thigh (12 July, p. 96) reminds me of a case which I reported some years ago¹ in which an acute sigmoid diverticulitis presented with a similar abscess at the same site.

The patient was an elderly man with a history of pain in the right thigh, which had started in the groin seven weeks before admission. The condition was first diagnosed as "muscular rheumatism" and massage prescribed. This made the condition worse with increasing swelling of the thigh and a high temperature. On admission to hospital the right thigh was grossly swollen and inflamed, and at operation much foul pus was evacuated. Antibiotics had not yet become available, and the patient's condition gradually deteriorated, with death six days later.

At necropsy the sigmoid loop showed well-marked diverticulosis, and was adherent to the right brim of the lesser pelvis. On separating the adhesions a necrotic diverticulum was found to be attached to the psoas sheath and communicated with a suppurating tract, which extended downwards within the psoas muscle beneath the inguinal ligament towards the iliopsoas attachment to the lesser trochanter, where the pus had burst through the sheath into the upper thigh. From there it had burrowed in the intermuscular planes down the medial half of the thigh. Culture showed a haemolytic streptococcus.

—I am, etc.,

A. LYALL.

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REFERENCE

- ¹ Lyall, A., *British Journal of Surgery*, 1936, 24, 192.

Toxicity of Carbon Tetrachloride

SIR,—Mr. R. C. Garner's letter (22 March, p. 777) on the case described by Dr. R. J. Weir (22 February, p. 487) underlines the importance of the potentiation of the toxicity of carbon tetrachloride by drugs. In man, accidents have almost invariably occurred in those consuming alcohol at the time of, or shortly before, using carbon tetrachloride. In only two of the 19 cases of acute renal failure occurring over seven years in New

York City was alcohol consumption not admitted.¹

I am not aware of any animal work on the toxicity of carbon tetrachloride administered with alcohol, but doubtless the toxic effect would be similarly enhanced. The acute oral LD₅₀ found by other workers was higher than the 3.6 ml./kg. body weight found by Mr. Garner. Spector² quotes the following:

Rat. Oral LD₅₀. 7,460 mg./kg. body weight.³ This compares with 5,706 mg./kg. body weight found by Mr. Garner. The slight difference between the two may be explicable by the grade of carbon tetrachloride used; the medical grade is much purer than the commercial.

In their tabulation of toxicity classes, Gleason *et al.*⁴ rate 5–15 g./kg. as "slightly toxic," with a probable lethal dose for a 70-kg. man between 1 pint (560 ml.) and 1 quart (1 l.).

Since most poisoning in man occurs by inhalation, the following figures for the rat, as quoted by Spector,² are relevant:

LC₅₀. 150 mg./litre or 23,900 p.p.m., exposed for 30 minutes, death in 14 days.⁵

A further difficulty is that in animals the major attack appears to be on the liver and in man on the kidney. While it is essential to follow the precautions outlined by Dr. Weir (CCl₄ has an S.G. of 1.585, and it is therefore important to have the door as well as the windows open), carbon tetrachloride on its own cannot be described as "a highly toxic" substance. For example, in animals (mouse, rat, rabbit), aspirin taken orally is much more toxic than CCl₄ (LD₅₀ is 1,100–2,000 mg./kg. body weight). Carbon tetrachloride is still used occasionally as an anthelmintic in man and regularly in animals. Much of the doubt about the toxicity has arisen because of its previous use as a fire-extinguisher and the generation of phosgene by heat. It should never be used as such, and old extinguishers should be emptied and the carbon tetrachloride put to better use as a reasonably safe solvent.—I am, etc.,

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REFERENCES

- ¹ New, P. S., Lubash, C. D., Scherr, L., and Rubin, A. L., *Journal of the American Medical Association*, 1962, 181, 903.
- ² *Handbook of Toxicology*, Vol. 1, 1956, edited by W. S. Spector. Philadelphia, Saunders.
- ³ Setty, H. F., *Unpublished data*.
- ⁴ Gleason, M. N., Gosselin, R. E., Hodge, H. C., and Smith, R. P., *Clinical Toxicology of Commercial Products. Acute Poisoning*, 3rd edition, 1969, Baltimore, Williams and Wilkins.
- ⁵ Spiegel, C. J., Howe, R. E., and LaFrance, L., *U.S. Atomic Energy Commission Report*, 1947/8. MDDC-1715.

Arthritis of the Hip

SIR,—Mr. A. J. Harrold (21 June, p. 741) is to be congratulated for presenting such a difficult subject so clearly. There are, however, a number of important omissions and controversial points in his article.

(1) Limp.—It should be stressed that there are two types of limp: (a) the so-called valgus gait, in which the patient throws his centre of gravity over the affected hip; and (b) the so-called Trendelenburg gait, in which the opposite side of the pelvis drops. This distinction is of practical importance. Patients with a valgus limp use a walking-stick in the opposite hand and benefit from a varus osteotomy, whereas patients with a Trendelen-

burg gait use their walking-stick in the ipsilateral hand and benefit from a valgus osteotomy.

(2) Flexion deformity of both hips.—Thomas's test is expertly described. This manoeuvre shows how a flexion deformity of one hip can be demonstrated, but how can this be done if there is a bilateral hip abnormality? Only by turning the patient over, when the contractures become immediately obvious.

(3) Causes of osteoarthritis.—Under the heading "Diagnosis and Management" Mr. Harrold lists a number of disorders. Every single one of these, with the exception of snapping hip, can cause osteoarthritis. To this list must be added fractures of the neck of the femur and of the acetabulum, as well as osteoporosis.

(4) Management of osteoarthritis.—The use of pain-relieving drugs ought to be referred to. The statement "when osteotomy is successful the relief of pain is lasting and is often associated with regression of the



FIG. 1



FIG. 2